

*a 4
Amend.*

a first subset of C coils circularly disposed on one of two angularly disposed surfaces of said electrical assembly and a second subset of C coils cylindrically disposed on the other of said two surfaces, each coil in the first subset being axially aligned with a corresponding coil in the second subset.

R E M A R K S

This patent application presently includes Claims 1-21 of which Claims 1-5 and 16-18 were rejected and Claims 6-15 and 19-21 were objected to, but indicated as allowable if rewritten in independent form. Claims 6-15 and 19-21 are rewritten in independent form, without amendment, Claim 1 is amended to define the applicant's invention more clearly, Claim 18 is amended to correct the spelling error, and all rejections are respectfully traverse.

Figures 1, 2A, 2B and 3 were objected to, the examiner asserting that they should be indicated as "Prior Art." Under separate cover, the undersigned is submitting proposed drawing corrections in this respect, and it is respectfully requested that the examiner approve these corrections.

Claim 18 was objected to, owing to the misspelling of "coil" at Line 1. With this amendment, the spelling error is corrected.

Claims 1-5 and 16-18 were rejected as obvious over Hahn, U.S. Patent No. 4,188,556 in view of Fukami, U.S. Patent No. 4,476,409. This

rejection is respectfully traversed. Neither reference nor their combination renders the present claim obvious.

As will be appreciated from the two cited references, it is conventional in a disk-type motor for the magnetic flux to extend substantially parallel to the axis of rotation. For example, in Fig. 1 of Fukami, the magnet 13 will produce flux which extends across the gap in a direction substantially parallel to the axle 5. Thus, the coils are cut by the flux lines in a direction substantially perpendicular to them.

At the radial outward extreme of the magnet 13, the flux lines will tend to form large loops. However, since the coils in Fukami remain substantially parallel to the surface 1a, this will not make much a difference and the flux will continue to cut those coils in a substantially perpendicular position. However, to the extent that the flux is not perpendicular, some efficacy is lost.

In contrast, for example in the embodiment of Fig. 4A, the portion of the coil on disk portion 28" is parallel to the flux produced between the magnets 34, 34' and would therefore be essentially unaffected by that flux. However, the magnets 34a, 34b are added which cause the flux in the portion of the gap containing disk portion 28" to be substantially perpendicular to the direction of the gap and, therefore, cutting the corresponding coil in a substantially perpendicular direction. This is what provides the increased torque and efficiency of the present invention.

In neither Hahn nor Fukami is it even remotely suggested that the flux follow the cup-shape of an cup-shaped gap. In particular, the present claims provide that the portion of the air gap remote from the axis extend in a direction lateral to the remainder of the air gap that the flux in this portion be substantially perpendicular to its direction of extension. This feature is not taught or suggested by either Hahn or Fukami, and Claim 1 is therefore believed to be allowable over both of them or their combination.

Claims 2-5, 16 and 17 depend, either directly or indirectly from Claim 1 and are believed to be allowable based upon their dependence from an allowable claim. However, certain of these claims are believed to be allowable on their own merits. For example, Claim 17 provides that the electrical assembly include a generally disk-shaped portion to which the axis is generally perpendicular and a portion which generally cylindrical about the axis. As can be seen in Fig. 1 of Fukami, the coils deviate only slightly from being parallel to the surface 1a. Accordingly, there is no portion which is generally cylindrical. Only the support structure has a cylindrical portion.

In the office action, the examiner indicated that Claims 6-15 and 19-21 were merely objected to, but would be allowed if rewritten in independent form. Claims 6, 8 and 19 have been so rewritten, and the remainder of these claims are dependent. Accordingly, Claims 6-15 and 19-21 are now in condition for allowance.

Applicant's attorney has made every effort to place this patent application in condition for allowance. It is therefore earnestly requested that the application, as a whole, receive favorable reconsideration and that all of the claims be allowed as presently constituted. Should there remain any unanswered questions, the examiner is requested to call the applicant's undersigned attorney at the telephone number given below.

Respectfully submitted,



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